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# Non Invasive Imaging

## 2D SPECKLE TRACKING ECHOCARDIOGRAPHY WAS HELPFUL TO PREDICT MICROVASCULAR OBSTRUCTION AND INTRAMYOCARDIAL HAEMORRHAGE IN ACUTE PHASE OF ST ELEVATION MYOCARDIAL INFARCTION AFTER REPERFUSION THERAPY

Oral Contributions
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Session Title: Expanding the Horizons of Echocardiography
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We hypothesized that the strains by 2D speckle tracking echocardiography could be used to predict transmural necrosis, microvascular obstruction (MVO), and intramyocardial haemorrhage (IMH) in the acute phase of the patients with ST segment elevation myocardial infarction (STEMI) after reperfusion therapy.

**Method:** 2D speckle tracking echocardiography were performed on 63 patients (58 males, mean age 57 years) with STEMI after percutaneous coronary intervention (PCI). The peak systolic segmental circumferential (CS), longitudinal (LS), and radial (RS) strains were measured. T2-weighted magnetic resonance (MR) was used to differentiate between haemorrhagic and non-haemorrhagic infarcts. MVO and transmural necrosis were determined on contrast-enhanced MR.

**Results:** There were significant differences in CS, LS and RS between presence and absence of >50% transmural necrosis, MVO, and IMH ($p< 0.001$). CS ≥ - 8.26% associated with the highest AUC to predict IMH (AUC= 0.85) compared to LS (AUC= 0.84) and RS (AUC= 0.75). LS ≥ -13.96% associated with the best AUC to predict MVO (AUC= 0.85) compared to CS (AUC= 0.84) and RS (AUC= 0.74). LS ≥ -10.61% and CS ≥ -14.27% associated with similar AUC to predict transmural necrosis (AUC= 0.86) compared to RS (AUC= 0.80).

**Conclusion:** 2D speckle tracking echocardiography was helpful to predict transmural necrosis, MVO and IMH in acute phase of the patients with STEMI after PCI. According to our limited data, CS and LS were more favorable to predict IMH and MVO compared to RS.

| ROC results | | | | | |
|---|---|---|---|---|---|
| | Criterion % | AUC | Sensitivity | Specificity | P |
| CS vs IMH | ≥ -8.26 | 0.85 | 73 | 85 | 0.0001 |
| LS vs IMH | ≥ -9.24 | 0.84 | 81 | 75 | 0.0001 |
| RS vs IMH | ≤ 17.67 | 0.75 | 62 | 75 | 0.0001 |
| CS vs MVO | ≥ -13.96 | 0.85 | 88 | 69 | 0.0001 |
| LS vs MVO | ≥ -10.57 | 0.84 | 81 | 76 | 0.0001 |
| RS vs MVO | ≤ 25.06 | 0.74 | 72 | 78 | 0.0001 |
| CS vs Necrosis | ≥ -14.27 | 0.86 | 83 | 75 | 0.0001 |
| LS vs Necrosis | ≥ -10.61 | 0.86 | 78 | 82 | 0.0001 |
| RS vs Necrosis | ≤ 22.98 | 0.80 | 70 | 75 | 0.0001 |